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EXAMINER	
PRUCHNIC, STANLEY J	
ART UNIT	**PAPER NUMBER**
2859	

DATE MAILED: 01/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/706,937	DAMMANN, HANS-JOACHIM	
	Examiner	Art Unit	
	Stanley J. Pruchnic, Jr.	2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 September 2004 and 08 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-15,17-25 and 27-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,8-13,15,18-23,25 and 28-36* is/are rejected.

7)☒ Claim(s) *4,7,14,17,24 and 27* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 10/096,158.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/8/04; 9/27/04* (2 sheets)
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10/096,158, filed on 11 March 2002.

Terminal Disclaimer

2. The terminal disclaimer filed on 27 September 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted issuing from Application No. 10/706,935 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Amendment Status

3. The Amendment (Not Entered) to the Specification filed on 09/27/04 (Page 2 of Reply) does not comply with the requirements of 37 CFR 1.121(b)(1), which states

> Amendments to the specification, including amendment to a section heading or the title of the invention which are considered for amendment purposes to be an amendment of a paragraph, must be made by submitting:
>
> (i) An instruction, which unambiguously identifies the location, to delete one or more paragraphs of the specification, replace a paragraph with one or more replacement paragraphs, or add one or more paragraphs;
>
> (ii) The full text of any replacement paragraph with markings to show all the changes relative to the previous version of the paragraph...

In this case, the entire paragraph has not been identified, since the paragraph begins on the previous page. The full text of the entire paragraph has not been included in the proposed amendment.

In order to expedite prosecution, this "informal" amendment has been considered "Not Entered". Please resubmit the amendment (***only*** the changes directed toward the *Specification, that is, all that was included on Page 2 of the Reply filed* 09/27/04, including the amendment to the Title and Paragraph 1) with your response to this Office Action.

Specification

4. Please resubmit the amended Paragraph, as noted above, to include the entire paragraph starting on Page 11.

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: --FIBER OPTIC TEMPERATURE MONITORING SYSTEM--.

Appropriate Correction is required.

Claim Objections

6. Claims 1, 11, 21 and 31 are FINALLY objected to because of the following informalities:

a. In Claim 1, in Line 10, the limitation "said determination" lacks antecedent basis.

b. In Claim 11, in Line 8, please delete the word **--the--** before "**fiber optic**" in order to clearly describe the invention, since "said" already clearly indicates the fiber optic cable has already been introduced.

c. In Claim 21, in Line 10, the limitation "said determination" lacks antecedent basis.

d. In Claim 31, in Line 1, please delete the word **--the--** before "**said processor**" in order to clearly describe the invention, since "said" already clearly indicates the processor has already been introduced.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

8. Claims 1-3, 5, 8, 11-13, 15, 18, and 33-36 are FINALLY rejected under 35 U.S.C. 102(b) as being anticipated by **EP 421,967 A1** (Carlström *et al.,* hereinafter **CARLSTROM**).

CARLSTROM discloses a system for monitoring temperature conditions as claimed by Applicant in Claims 1-3, 5, 8, 11-13, 15, 18, 33, 35 and 36, comprising, firstly, regarding ***Claims 1 and 11:***

a fiber optic cable (6, 7; Col. 3, Lines 2-21);

a light emitting device (8, 9; Col. 4, Lines 16-19) coupled to said fiber optic cable and configured to input a light pulse (P) into said fiber optic cable (6, 7), which is a means for inputting a light pulse into said cable;

an optical receiver (8, 9; OTDR unit) coupled to said fiber optic cable and configured to receive a reflection signal (Col. 3, Lines 12-15; Col. 4, Lines 31-36; Col. 5, Lines 13-15) that arises from said input light pulse (P) in said fiber optic cable (6, 7), and is a means for receiving said reflection signal; and

a processor 10 (means for determining) configured to determine temperature conditions (*e.g., conditions resulting from* a temperature within a detection range (T1 to T2; Col. 3, Lines 45-54) in zone 5; Figs. 1, 6) on different portions (B1, B2) of the fiber optic cable (6) based on said reflection signal, said determination being based on a comparison performed for each of said different portions of the fiber optic cable, as claimed by Applicant in ***Claims 1 and 11***, the comparison being disclosed by CARLSTROM as the comparison between the curves "A" and "B" in Fig. 6, the curve "B"

showing the attenuation when the temperature in domain 5 exceeds the threshold temperature T1 (Col. 4, Lines 16-31).

Regarding ***Claims 2 and 12***, CARLSTROM discloses said processor 10 is configured to determine said temperature conditions based on an amplitude of said reflection signal (See Fig. 6 which shows an amplitude of the reflected signal being attenuated as a result of a changed temperature condition in zone 5; Col. 4, Lines 11-15 and following) as claimed by Applicant.

Regarding ***Claim 33***, CARLSTROM discloses the OTDR-system using fiber optic cable 6, in particular, a method of detecting the reflected light pulse from the end, which is a break of said fiber optic cable portion ***6a (Fig. 1)***. The OTDR-system inherently would reflect light back to the source, as is well known in the OTDR-system, and is relied upon by CARLSTROM, remaining functional as the OTDR-system in order to measure the distance (to the "break" end and back) by timing the return signal.

Regarding ***Claims 3, 13 and 34***, CARLSTROM discloses said comparison is performed with respect to a threshold value (T1), which is a comparison signal, corresponding to one of said portions (B1, B2), further comprising means for determining said temperature conditions based on a threshold value corresponding to one of said portions.

Further regarding ***Claims 35 and 36***, CARLSTROM discloses different thresholds (Col. 5, Lines 34ff; at the boundaries of either of the ranges { (T1-T2) and (T5-T6)}) are allocated to different portions of the fiber optic cable, *e.g.,* in rooms 2, 3, and 4, and CARLSTROM already inherently discloses, by using OTDR, that a transit

time of the reflection signal provides the range equivalent to a distance of any particular portion of the cable.

Regarding ***Claims 5, 8, 15 and 18***, CARLSTROM discloses said processor 10 is configured to determine a location for one of said portions of the fiber optic cable (6) based on a return time of said reflection signal (Col. 1, Lines 46-50; Col. 3, Lines 2-21) as claimed by Applicant; and by determining at least one of a location relative to an overall length of the fiber optic cable, and an absolute distance from one end of the fiber optic cable (Col. 4, Lines 20-21; Length "L" being given in meters in Fig. 6, determined by OTDR) as claimed by Applicant.

9. Claims 1, 2, 5, 8, 11-12, 15 and 18 are FINALLY rejected under 35 U.S.C. 102(b) as being anticipated by SAI (U. S. Patent No. 5,765,948, hereinafter ***SAI'948***).

SAI'948 discloses a system for monitoring temperature conditions, comprising, regarding ***Claims 1 and 11***:

a fiber optic cable 3;

a light emitting device 4 coupled to said fiber optic cable and configured to input a light pulse (a) into said fiber optic cable 3;

an optical receiver 7 coupled to said fiber optic cable and configured to receive (means for receiving) a reflection signal (backscattered light b) that arises from said input light pulse (a) in said fiber optic cable 3 (see Col. 8, Lines 10-30); and

a processor 34 (Col. 11, Line 26 - Col. 12, Line 55) configured to determine (means for determining) temperature conditions on different portions of the fiber optic cable (a temperature distribution along the fiber optic cable includes different portions, locations designated (x) on the fiber 3; Figs. 6-8; Col. 11, Lines 31-41) based

on said reflection signal (b), said determination (of said temperature distribution, *i.e.,* temperature as a function of position; Fig. 8) being based on a comparison (Col. 12, Lines 47-53; wherein the comparison is performed in CPU 34 by the arithmetic processing program 42, said comparison being performed by calculating the ratio of the Anti-Stokes Raman scattered light and the Stokes Raman scattered light), this calculation (comparison) being performed for each of said different portions (x) of the fiber optic cable as claimed by Applicant in **Claims 1 and 11**. Further regarding ***Claim 13***: SAI'948 discloses the means for determining said temperature conditions based on an amplitude of said reflection signal (SAI'948 discloses three amplitude signals are used as described above, and also including the Rayleigh back-scattered light signal.

Regarding **Claims 2 and 12**, SAI'948 discloses said processor 34 is configured to determine (is a means for determining) said temperature conditions based on an amplitude of said reflection signal (Col. 11, Lines 31-46ff).

Regarding **Claims 5, 8, 15 and 18**, SAI'948 discloses said processor (means for determining) is configured to determine a location for one of said portions of the fiber optic cable based on a return time of said reflection signal (Col. 11, Lines 31-41); and further regarding Claims 8 and 18, SAI'948 discloses said processor is configured to determine said location by determining at least one of a location relative to an overall length of the fiber optic cable, and an absolute distance from one end of the fiber optic cable (Figs. 6-8).

10. Claims 1-2, 5, 8-12, 15 and 18-20 are FINALLY rejected under 35 U.S.C. 102(b) as being anticipated by IIDA *et al.* (U. S. Patent No. 5,356,220, hereinafter ***IIDA'220***).

Regarding Claims 1-2, 5, 8-9 and 10:

IIDA'220 discloses a system for monitoring temperature conditions, comprising:

a fiber optic cable 2;

a light emitting device (*i.e.,* a Laser Diode 5; Fig. 7) coupled to said fiber optic cable 2 and configured to input a light pulse 18 (Col. 4, Lines 49-55; 65-68) into said fiber optic cable 2;

an optical receiver (photodiodes 9, 10; Col. 5, Lines 17-21) coupled to said fiber optic cable and configured to receive a reflection signal (19, Raman backscattered light) that arises from said input light pulse 18 in said fiber optic cable 2 (see Col. 5, Lines 22-47); and

a processor 12 (Col. 5, Lines 55-63) configured to determine temperature conditions (including a temperature distribution along the cable; Col. 5, Lines 22-60) on different portions of the fiber optic cable 2, based on said reflection signal, said determination being based on a comparison (Col. 3, Lines 33-55; wherein the comparison is the calculation of a ratio of Stokes and Anti-Stokes Raman scattered light in each measured position, or segment) performed for each of said different portions of the fiber optic cable as claimed by Applicant in **Claim 1**.

Regarding **Claim 2**, IIDA'220 discloses said processor 12 is configured to determine said temperature conditions based on an amplitude of said reflection signal (Col. 3, Lines 44-51).

Regarding **Claim 5**, IIDA'220 discloses said processor is configured to determine a location for one of said portions of the fiber optic cable based on a return time of said reflection signal (Col. 3, Lines 44-51);

Regarding **Claim 8**, IIDA'220 discloses said processor is configured to determine said location by determining at least one of a location relative to an overall length of the fiber optic cable, and an absolute distance from one end of the fiber optic cable (Figs. 6-8).

Regarding **Claim 9**, IIDA'220 discloses said processor is configured to determine at least one of a temperature duration and a temperature progression (*i.e.,* "temperature changes rapidly"; Fig. 1, Step S5; also see Col. 8, Lines 32-35) over a predetermined time interval.

Regarding **Claim 10**, IIDA'220 discloses a signal generator configured to initiate at least one of an alarm (Fig. 1, Step S5; Col. 8, Lines 45-49), a safety measure (Col. 3, Lines 26-32) or a corrective measure (Sprinkling Control Computer 25; Fig. 10; Col. 9, Lines 31-66).

Regarding Claims 11-12, 15 and 18-20:

IIDA'220 discloses a system for monitoring a temperature condition, comprising:

a fiber optic cable 2;

means (*i.e.*, a Laser Diode 5; Fig. 7) for inputting a light pulse 18 (Col. 4, Lines 49-55; 65-68) into said fiber optic cable 2;

an optical receiver (photodiodes 9, 10; Col. 5, Lines 17-21) coupled to said fiber optic cable and configured to

means (photodiodes 9, 10; Col. 5, Lines 17-21) for receiving a reflection signal (19, Raman backscattered light) that arises from said input light pulse 18 in said fiber optic cable 2 (see Col. 5, Lines 22-47); and

means 12 (processor 12; Col. 5, Lines 55-63) for determining temperature conditions on different portions of said fiber optic cable 2 (including a temperature distribution along the cable; Col. 5, Lines 22-60) based on said reflection signal, said means for determining including means for performing a comparison (Col. 3, Lines 33-55; wherein the comparison is the calculation of a ratio of Stokes and Anti-Stokes Raman scattered light in each measured position, or segment) for each of said different portions as claimed by Applicant in **Claim 11**.

Regarding **Claim 12**, IIDA'220 discloses said processor 12 is a means for determining said temperature conditions based on an amplitude of said reflection signal (Col. 3, Lines 44-51).

Regarding **Claims 15**, IIDA'220 discloses said processor is means for determining different a location for one of said portions of the fiber optic cable based on a return time of said reflection signal (Col. 3, Lines 44-51).

Regarding **Claim 18**, IIDA'220 discloses said processor is means for determining said location by determining at least one of a location relative to an overall length of the fiber optic cable, and an absolute distance from one end of the fiber optic cable (Figs. 6-8).

Regarding **Claim 19**, IIDA'220 discloses said processor is means for determining at least one of a temperature duration and a temperature progression (i.e., "temperature changes rapidly"; Fig. 1, Step S5) over a predetermined time interval.

Regarding **Claim 20**, IIDA'220 discloses a means for generating a signal to initiate at least one of an alarm (Fig. 1, Step S5), a safety measure or a corrective measure (Sprinkling Control Computer 25; Fig. 10; Col. 9, Lines 50-66).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 31 and 32 are FINALLY rejected under 35 U.S.C. 103(a) as being unpatentable over IIDA'220 in view of ***WEISS*** (U. S. Patent No. 5,419,636, hereinafter ***WEISS'636)*** and the *Admitted Prior Art* in Applicant's disclosure, at Specification pages 1 and 2, in Paragraphs [0003-0004], hereinafter ***PRIORART***.

IIDA'220 discloses or suggests all the limitations as claimed by Applicant in Claims 31 and 32, including the limitations of Claims 1-2, 5, 8-12, 15 and 18-20 as describe above in Paragraph 10. IIDA'220 further disclosed or suggested said processor configured to detect and recognize a temperature increase as described above.

IIDA'220 as described above, does not teach the system wherein the temperature increase is characteristic of a faulty escape of air from an aircraft pipe system as claimed by Applicant in Claim 31, or wherein said pipe system is a

pressurized air system configured to deliver hot pressurized bleed air from an aircraft engine as claimed by Applicant in Claim 32.

IIDA'220, to summarize, is shown to teach all of the limitations as claimed by Applicant, with the exception of the temperature increase being characteristic of a faulty escape of air from a pipe system being a pressurized air system configured to deliver hot pressurized bleed air from an aircraft engine as claimed by Applicant.

From the PRIORART, it is already known to include sensors in aircraft for monitoring faulty escape of hot pressurized air from the hot bleed air system and to use a computer to detect this and generate warnings (Paragraphs [0003-0004]).

WEISS'636 further teaches or suggests that it is advantageous to use fiber optic temperature sensors as replacement for electronic equivalents in order to benefit from their inability to create potentially hazardous sparks (Col. 1, Lines 20-24).

WEISS'636 is evidence that ordinary workers in the field of temperature measurement would recognize the benefit of providing a fiber optic temperature sensor as taught by WEISS'636 and of IIDA'220 in order to detect and generate an alarm for a faulty escape of air from an aircraft hot pressurized bleed air pipe system as taught by PRIOR ART and in order to benefit from their inability to create potentially hazardous sparks as taught by WEISS'636.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the fiber optic temperature sensor of IIDA'220 for the known use of detection and generation of an alarm for a faulty escape

of air from an aircraft hot pressurized bleed air pipe system as taught by PRIOR ART in order to avoid dangerous sparks as taught by WEISS'636.

13. Claims 21-23, 25 and 28-30 are FINALLY rejected under 35 U.S.C. 103(a) as being unpatentable over IIDA'220 in view of SAI'948.

IIDA'220 discloses or suggests all the limitations as claimed by Applicant in Claims 21-23, 25 and 28-30, as described above in Paragraph 10 regarding Claims 11-12, 15 and 18-20, including the limitations of Claim 21:

a computer 12 (data processing unit) containing program instructions (Col. 6, Lines 1-13; Col. 7, Lines 14ff) for execution on a computer controlled system for monitoring temperature conditions, which when executed by the system, cause the system to perform the following steps:

input a light pulse 18 (Col. 4, Lines 49-55; 65-68) into a fiber optic cable 2 of the system;

receive a reflection signal that arises from said input light pulse in said fiber optic cable; and

determine temperature conditions on different portions of (temperature distribution along) the fiber optic cable, based on said reflection signal, said determination (of said temperature distribution, *i.e.,* temperature as a function of position; Fig. 8) being based on a comparison (Col. 12, Lines 47-53; wherein the comparison is performed in CPU 34 by the arithmetic processing program 42, said comparison being performed by calculating the ratio of the Anti-Stokes Raman scattered light and the Stokes Raman scattered light), this calculation (comparison)

being performed for each of said different portions (x) of the fiber optic cable as claimed by Applicant in **Claim 21.**

IIDA'220 further discloses or suggests the system performs all the steps of Claims 21-23, 25 and 28-30 by computer control, as described above in Paragraph 10 with respect to Claims 21-23, 25 and 28-30.

IIDA'220 does not explicitly disclose the computer readable medium containing the program instructions as claimed by Applicant in Claim 21.

IIDA'220, to summarize, is shown to teach all of the limitations as claimed by Applicant, with the exception of the computer readable medium containing the program instructions.

SAI'948 discloses (Fig. 5; Col. 9, Line 34 - Col. 10, Line 43) "Measurement Execute Program 41" and "Arithmetic Processing Program 42" stored in "Main Memory 36" in order that the CPU 34 carries out the execution and arithmetic operations necessary to control the system for monitoring a temperature condition. SAI'948 further discloses "Secondary Memory 38" (Col. 10, Lines 38-43) which is a storage medium containing other programs, *etc.*

SAI'948 discloses that is known in the art to provide a computer controlled fiber optic temperature monitoring system with computer readable medium and storing the program instructions for the computer.

SAI'948 further teaches or suggests that it is advantageous to provide computer readable medium containing the program instructions in order to benefit from the ability to carry out the desired instructions automatically by the computer.

SAI'948 is evidence that ordinary workers in the field of fiber optic temperature monitoring would recognize the benefit of providing computer readable medium containing the program instructions as taught by SAI'948 for the instructions/programming of IIDA'220 in order to benefit from the ability to carry out the desired instructions automatically by the computer.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the computer controlled system of IIDA'220 with a computer readable medium containing the program instructions in order to carry out the desired instructions automatically by the computer as taught by SAI'948.

Double Patenting

14. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

15. **Claims 31-32** are provisionally FINALLY rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over **Claim 1** of

copending **Application No. 10/096,158** (hereinafter referred to as **PARENT**) in view of ***WEISS'636*** and ***PRIORART.***

PARENT, to summarize, claims or suggests all the limitations as claimed by Applicant in **Claims 31-32**, including the intended use of the system in an aircraft including a hot engine bleed air system with a bleed air pipe;

wherein a fiber optic cable sensor is arranged to extend along said bleed air pipe; and

wherein said fiber optic cable sensor includes plural sensor zones along said fiber optic cable;

a light emitting device connected to a first end of the fiber so as to transmit a light pulse into said cable;

an optical receiver connected to the first end receives a reflection signal; and

a processor (computer) adapted and programmed to determine temperature conditions (bleed air raising the temperature in the vicinity of a leak in the bleed air pipe, thus indicating the presence and location of a leak, on some portion of the fiber optic cable) from the amplitude of the reflection signal as claimed by Applicant in Claims 31-32.

PARENT does not claim a processor configured to determine temperature conditions on different portions of the fiber optic cable based on said reflection signal, said determination being based on a comparison performed for each of said different portions of the fiber optic cable as claimed in the instant application.

From the PRIORART, it is already known to include a processor configured to detect faulty escape of hot pressurized air from the hot bleed air system by determining

temperature conditions on different portions of temperature sensors in an aircraft and generate warnings (Paragraphs [0003-0004]).

WEISS'636 further teaches or suggests that it is advantageous to use fiber optic temperature sensors as replacement for electronic equivalents for temperature in order to benefit from their inability to create potentially hazardous sparks (Col. 1, Lines 20-24).

WEISS'636 is evidence that ordinary workers in the field of temperature measurement would recognize the benefit of providing a fiber optic temperature sensor as taught by WEISS'636 and of the PRIORART in order to detect and generate an alarm for a faulty escape of air from an aircraft hot pressurized bleed air pipe system as taught by PRIOR ART and in order to benefit from their inability to create potentially hazardous sparks as taught by WEISS'636.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the fiber optic temperature sensor of PARENT for the known use of detection and generation of an alarm for a faulty escape of air from an aircraft hot pressurized bleed air pipe system as taught by PRIOR ART in order to avoid dangerous sparks as taught by WEISS'636.

This is a provisional obviousness-type double patenting rejection.

Response to Arguments

16. Applicant's arguments with respect to claims 1-36 have been considered but are moot in view of the new ground(s) of rejection.

Claims 1 and 6, for example, *originally* included a processor configured to determine a temperature condition along the fiber optic cable and a location of the temperature condition along the fiber optic cable based on said reflection signal, and

further, in Claim 6, wherein said processor is configured to determine said temperature condition in each of said different portions of the fiber optic cable based on **at least one of** a threshold value and a comparison signal corresponding to each of said different portions of the fiber optic cable. Claim 1, *as amended*, does not explicitly require **either one of** a threshold value and a comparison signal corresponding to each of said different portions.

Allowable Subject Matter

17. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

18. Claims 4, 7, 14, 17, 24 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

19. The following is a statement of reasons for the indication of allowable subject matter: IIDA'220 further discloses the optical fiber is laid or installed along the object to be measured (in the measurement section 3), and in the vicinity thereof, there is a constant temperature tank 17. HARTOG et al. (USPAT 5,821,861) includes an adjustable heating pad 40 (Col. 3, Lines 53-67) to facilitate testing of the system, and could be used to simulate hot spots the system is required to detect. BIBBY (USPAT 4767219) includes a reference section maintained at a known temperature, which facilitates calibration of the system.

The prior art of record fails to show or fairly suggest a system for monitoring temperature conditions wherein a processor is configured to adjust at least one of a threshold value and a comparison signal to detect different temperature conditions as claimed by applicant in the respective Claims 4, 7, 14, 17, 24 and 27, each functioning

as claimed by applicant in the claims, in combination with the remaining limitations of the respective claims.

Conclusion

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in a form PTO-892 and not mentioned above disclose related fiber optic temperature distribution sensing devices and methods.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stanley J. Pruchnic, Jr., whose telephone number is **(571) 272-2248**. The examiner can normally be reached on weekdays (Monday through Friday) from 7:30 AM to 4:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. F. Gutierrez can be reached at **(571) 272-2245**.

The ***Official FAX*** number for Technology Center 2800 is **(703) 872-9306** for ***all official communications***.

Any inquiry of a general nature or relating to the status of this application or proceeding may be directed to the official USPTO website at **http://www.uspto.gov/** or you may call the **USPTO Call Center** at **800-786-9199** or 703-308-4357. The Technology Center 2800 Customer Service FAX phone number is (703) 872-9317.

The cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site (www.uspto.gov), from the Office of Public Records and from commercial sources.

Private PAIR provides external customers Internet-based access to patent application status and history information as well as the ability to view the scanned images of each customer's own application file folder(s).

For inquiries relating to Patent e-business products and service applications, you may call the ***Patent Electronic Business Center (EBC)*** at **703-305-3028 or toll free at 866-217-9197** between the hours of **6 a.m. and midnight Monday through Friday EST,** or by e-mail at: **ebc@uspto.gov**. Additional information is available on the Patent EBC Web site at: **http://www.uspto.gov/ebc/index.html**.

GAIL VERBITSKY
PRIMARY EXAMINER

DIEGO F. F. GUTIERREZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Stanley J. Pruchnic, Jr.
12/29/04